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**THE PECULIAR FEATURES
OF HUMAN RESOURCE MANAGEMENT
IN AGILE COMPANIES**

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Abstract: Agile philosophy describes a set of values and principles that are based on collaborative effort of self-organizing cross-functional teams. Nowadays agile approach is widely used and it requires the introduction of methods that are different from traditional management and traditional human resource practices. However, the questions how modern companies utilize HRM practices in order to address challenges of agile philosophy are not fully answered.

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The peculiar features of Human Resource Management in agile companies

1. Introduction

Tendencies in modern management testify that the companies move from classical models of management to more flexible and agile (Deloitte, 2016). The agile approach ¹has now gone beyond project management and characterizes technologies based on teamwork, shared responsibility, elimination of rigid hierarchies and design thinking. The study by Deloitte (2016), which covered 7,000 companies around the world, showed that 92% of respondents consider the organization's redesign to be critical in the struggle for company competitiveness. Companies are decentralizing power distribution, moving towards product-oriented and client-oriented organizations and form dynamic networks of teams. These networks have vast amount of responsibilities and use it to share data and knowledge and coordinate activities in unique and effective ways.

According to experts, flexible (agile) forms of management allow to allocate resources efficiently and to achieve high performance in turbulent times. According to Frederic Laloux (2016), agile techniques represent management model of the future. The basic principles of Agile-approach are formulated in the works of D K. Rigby, J. Sutherland and H. Takeuchi. At present, agile-approach has ceased to be a sphere of interest mainly IT companies: there is a tendency to implement agile principles in the industry and banking sectors.

There are various combinations of agile technologies and appropriate guidance on how to implement them. Despite the fact that agile approaches have been developed to overcome the shortcomings of classical systems (lack of flexibility, teamwork within the team, duplication of tasks within units, low productivity and client-orientation), absence of the developed theoretical and methodological base complicates efficiency of use of agile methods in real practice. According to experts' opinion, out of 10 attempts to implement agile system, only one ends in success.

The main factors of unsuccessful implementation of agile approach in real business are the problems with personnel. Failures are generated by the lack of self-management, bad communications, divergence of role and personality characteristics of the team members, ineffective styles of leadership.

These problems are not systematized (neither in Russian nor in foreign literature), and there are no recommendations how to solve them. Practice has shown that it is not currently possible to provide universal methods for implementing agile technologies, despite the existence of relevant manuals. Examples of successful implementation prove that the choice of management technique should be based on the analysis of unique organizational and psychological problems.

Thorough study and theoretical understanding of these problems from the standpoint of management (especially, human resources management) and organizational psychology is extremely important: it should be noted that this direction of HR practice in agile projects is fundamentally new for Russian and foreign research.

The aim of this study is twofold:

- Explore cases of agile technologies and related human resource management practices
- Substantiate principles of human resources management using agile technologies.

¹ Agile development or agile project management is an iterative and incremental method of managing of activities for engineering, information technology, and new product or service development projects.

2. Agile in project management

The term “agile” (“agile software development”) indicates a family of "flexible" approaches to software development and describes an approach under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customer(s)/and user(s). Agile approach is often contrasted with the classic waterfall model, that tends to be among the less iterative and flexible approaches. In waterfall progress flows in largely one direction through the phases of conception, initiation, analysis, design, construction, testing, deployment and maintenance of the product.

All agile approaches are united by the same system of values, declared in Agile Manifesto (2001). The manifesto consists of 4 basic ideas and 12 principles

Ideas	Principles
1. Individuals and interactions over processes and tools	1.Customer satisfaction through early and continuous software delivery – Customers are happier when they receive working software at regular intervals, rather than waiting extended periods of time between releases.
2. Working software over comprehensive documentation	2. Accommodate changing requirements throughout the development process – The ability to avoid delays when a requirement or feature request changes.
3. Customer collaboration over contract negotiation	3. Frequent delivery of working software – Scrum accommodates this principle since the team operates in software sprints or iterations that ensure regular delivery of working software.
4. Responding to change over following a plan	4. Collaboration between the business stakeholders and developers throughout the project – Better decisions are made when the business and technical team are aligned.
	5. Support, trust, and motivate the people involved – Motivated teams are more likely to deliver their best work than unhappy teams.
	6. Enable face-to-face interactions – Communication is more successful when development teams are co-located.
	7. Working software is the primary measure of progress – Delivering functional software to the customer is the ultimate factor that measures progress.
	8. Agile processes to support a consistent development pace – Teams establish a repeatable and maintainable speed at which they can deliver working software, and they repeat it with each release.
	9. Attention to technical detail and design enhances agility – The right skills and good design ensures the team can maintain the pace, constantly improve the product, and sustain change.
	10. Simplicity – Develop just enough to get the job done for right now.
	11. Self-organizing teams encourage great architectures, requirements, and designs – Skilled and motivated team members who have decision-making power, take ownership, communicate regularly with other team members, and share ideas that deliver quality products
	12. Regular reflections on how to become more effective – Self-improvement, process improvement, advancing skills, and techniques help team members work more efficiently.

There are methodologies that adhere to the values and principles stated in Agile Manifesto: Extreme Programming, XP, Lean Development, Scrum, etc. Let's give a brief description to them:

The XP (Extreme Programming) method is a software development methodology which is intended to improve software quality and responsiveness to changing customer requirements. It consists of frequent "releases" in short development cycles, which is intended

to improve productivity and introduce checkpoints at which new customer requirements can be adopted. The method is based on 12 principles, that are listed below:

- The Planning Game
- Small Releases
- Metaphor
- Simple Design
- Testing
- Refactoring
- Pair Programming
- Collective Ownership
- Continuous Integration
- 40-hour week
- On-site Customer
- Coding Standard

Despite the fact that the method of extreme programming is specific (it is just programming), it embodies all the basic principles of agile-approach: teamwork, collective responsibility, susceptibility to change.

Kanban (translated from Japanese as a "visual signal" or "map") a tool for implementing the "just in time" principle, introduced in Toyota in 1962. Kanban is based on the basic principles: visualization, the limit on the number of tasks at the stage, the continuous flow (work on the project does not stop) and the continuous improvement (the well-known "kaizen" principle). Kanban is based on teamwork, and it motivates the team members for continued cooperation, improvement and training. Specialists note that kanban is not a methodology, but a set of principles in which the work process is practically not managed and is not strictly regulated, and the result of the project depends on the team. The whole team is unified and the business process is divided at the stage of performing specific tasks (in kanban there are no strict time limits).

Scrum is considered to be the most structured approach from the agile family: the project is performed during iterations (sprints), which last from 2 to 4 weeks. A special feature of Scrum is the presence in the project of mandatory roles: product owner, scrum-master, development team, and agile-coach. Product owner "connects" the development team and the customer; he is the representative of the customer in the team. The task of the product owner is to increase the value of the product being developed. The scrum-master helps the team: conducts meetings, solves everyday problems, motivates the team and monitors the compliance with the scrum approach.

The development team (DT) consists of specialists who directly work on the product. According to The Scrum Guide, the team should be self-organizing, multifunctional with shared responsibility for the completed project. Agile coach is the person who helps the team to implement agile give the team the opportunity to get a more flexible outlook to the project.

It should be noted that initially agile approach was focused on small teams (5-7-9 people), but later the Scaled Agile Framework was developed (SAFe) that allowed to use agile- methodology in large teams of more than 50 people.

3. Agile beyond project management

The agile approach has proven its applicability in a high-tech environment – various frameworks and their combinations help to design new intellectual products. Benefits of agile include greater satisfaction and efficiency, increased quality and transparency, and early detection of product defects (Laanti et al, 2011).

There is a tendency to large-scale implementation of agile principles in Russia: according to the study Scrumtek Russia, 38% of organizations started to apply agile no more

than 1.5 years ago, but have already implemented it, nearly 40% of the companies are from financial industry, including insurance companies.

This reflects the popular belief that the main driver of agile approaches is banking industry: pilot projects on Agile transformation were declared by Sberbank ("Sbergile:Change Story") and Promsvjazbank.

However, during the implementation of agile methods into their work, many companies mainly concentrate on the interaction with the customer and consumers, and forget to transform their hr- practices. There is inattention to the HR issues in publications: limited literature is devoted to advantages of agile compared to traditional methods of work, success factors and difficulties in implementing agile, comparison of different approaches in agile development. Some studies can be related to organizational behavior: aspects of teamwork, employee satisfaction, distribution of tasks within the team, etc. There is even an opinion that agile term is being misunderstood, or so called agile culture is only a trend in management (ЯХОНТОВА, 2017).

The issues of HRM practices in agile companies in the academic literature are considered very fragmentary.

4. Human resource management practices in agile-companies

The methodology of analysis in the current paper is based on the AMO model of Blumberg-Pringle (Blumberg & Pringle, 1982). The main "assumption" of the model is that human behavior, the level and quality of performance depends on the complementary variables that characterize the person and the working environment: Ability, Motivation, Opportunity. The components of the model can interact with each other in various ways, the best combination for doing the work is the maximum expression of all three components. In accordance with this model, the HRM system should include three groups of practices aimed at:

- 1) use of knowledge, skills and abilities of employees;
- 2) increasing personnel motivation;
- 3) broadening the scope for work (see, for example: (Appelbaum et al., 2000; Boxall, Purcell, 2003; Jiang et al., 2012). The first one covers practices of training and development, as well as recruitment and selection of personnel (Jiang et al., 2012; Marin-Garcia, Tomas, 2016). The second group includes practices of tangible and intangible reward and career promotion of employees (Jiang et al., 2012; Marin-Garcia, Tomas, 2016). The third group includes practices of organizing teamwork, creating access to information and ensuring the autonomy of employees through the design of work (Marin-Garcia, Tomas, 2016).

According to the theory of strategic HRM, three groups of practices support each other and create a systemic synergistic effect (Boxall, Purcell, 2003). The absence or inadequate application of one or more groups of practices in the HRM system can lead to the dysfunctional behavior of employees and thereby weaken the firm's competitiveness. Thus, despite the possible features of the functioning of companies, including those focused on agile, and differences in specific practices for working with personnel, employees of any company should be provided with continuous development of competencies, high labor motivation and open opportunities for applying efforts. Thus, despite the possible features of the functioning of companies, including those focused on agile, and differences in specific practices for working with personnel, employees of any company should be provided with continuous development of competencies, high labor motivation and open opportunities for applying efforts. This review shows how these components are provided in agile organizations

First group of HRM practices: Competence Development Practices

The practice of training and development in agile organizations is generally characterized by a low degree of formalization and situationality. The Agile manifest and the

guidelines of various agile frameworks mention nothing on how the development of employees should be implemented in the long term. As a rule, employees acquire the knowledge, skills and abilities necessary for a particular project in the process of working on it. The main format of training and development in agile-companies, therefore, is on-the-job training (). As a result of constant exchange of experience between team members and periodic sessions on the analysis of experience (so-called retrospectives), work and learning merge into a single process. At the same time, this process is often subordinated to today's tasks, and the competence of employees, therefore, follows the current (and not perspective, strategic) business objectives.

Likewise, agile-methodologies do not regulate recruiting processes in any way. At the same time, the key feature of agile-companies is the linking of recruiting processes to a specific team, and not to the organization as a whole or to any of its subdivisions. This is manifested in the fact that, firstly, the team, as a self-organizing unit, rather than management or HR specialists, is the main subject of personnel decisions. Team members can take part in interviews, set their own criteria for selecting candidates, use their own search channels for employees (). Secondly, the value relevance of the employee to the team and the methods of work introduced in it is of particular importance. An important condition for the success of the agile team is the existence of a common mental model and the cultural similarity of team members (Schmidt, 2014; Gandomani, 2015). It is also important to emphasize that, as studies show, not all candidates are able to work in agile conditions: for this, at least, a high degree of trust and openness, self-organization and responsibility for the result is needed (Crowder, 2015).

Second group of practices: Practices for increasing motivation

The practice of compensation in the agile-company is built on the basis of team results. The main criterion of compensation is a working product. However, in (Alashqur, 2016) it is noted that insufficient consideration of individual factors in the work may negatively affect the effectiveness of the team. "Aligning" all members of the team, the company loses individual incentives to achieve, "does not let the stars shine" (). Individual incentives in this situation, on the one hand, can correct this situation by adding the most effective employees incentives to even higher results. On the other hand, individual encouragement creates incentives for competition and, as a result, lead to potential interpersonal conflicts, which carry particular risks in the Agile environment.

Intangible encouragement is one of the key practices for which the agile-companies stake. In (McHugh, 2013) it is noted that the advantage of agile-companies is created by a set of factors that determine the high motivation of employees. The main motivational factors in the agile-environment are autonomy, a sense of community with the team, feedback from the customer and the end user, recognition and trust, the transparency of the result, the variety of work performed. As a result, employees are better motivated and more satisfied with working conditions in agile companies, compared to companies with traditional labor management systems (Melnik, 2006). At the same time, agile can also bring factors that negatively affect motivation. Among them: an increased level of stress, high loads, duration and frequency of meetings, complexity and fragmentation of tasks (McHugh, 2013).

In view of the flat hierarchical structure, career development in agile-companies is often associated only with horizontal displacements. Employees can move from one project to another, raising or lowering the level of responsibility, the required expertise and financial incentives. A few options for vertical career development involve moving from the developer (team member) to the product owner (the product owner) and / or the managing partner of the company.

Third group of practices: expanding the working capabilities of personnel

The development of teamwork - i.e. practices promoting "the shift in the locus of decision-making and the responsibility for the result from top management to self-organizing teams" (Yin et al., 2018) - is the key driving force of the HRM system and the agile company

as a whole. It can be said that other HRM practices, both practices of competence development, and the practice of increasing motivation, are subordinated to increasing the effectiveness of teamwork. At the same time, the recommendations on the formation of teams and their typical device in the scientific literature and practical manuals are not clearly presented. So, it is controversial to think of the need for experience in teamwork with team members. In (Gandomani, 2015) it is argued that the success of group activities depends on the level of maturity of the team. The team should form a common mental model: the more "played" the team, the greater the possibilities for developing a successful product it has (Schmidt, 2014; Gandomani, 2015). On the other hand, (McAvoy, 2008) conclude that the agile approach works better for newly formed teams, and the activities of already cohesive teams will lead to "dysfunctional and inefficient decision-making."

The practices of providing information openness are related to the actions of staff facilitating access to potentially sensitive information, such as the cost and quality of products, the productivity and financial performance of the company, etc. While the agile company has sufficient transparency of information regarding a particular project the team is working on, and the openness of communication between team members (McHugh et al., 2013), in the literature there are no indications and evidence of the need to involve an employee to higher-level information concerning, for example, business results.

Another important practice for agile-companies is the practice of HRM - ensuring autonomy through the design of work activities. It is assumed that the autonomy of the team is achieved by the fact that each of its members has the widest possible specialization and can work on any part of the project activity (Moe, 2008; Hoda, 2012). Responsibility for the result and distribution of tasks within the project falls equally on each member of the team. At the same time, autonomy, formed at the level of the team, can serve as a barrier to individual autonomy. The study (Moe, 2008) shows that the more employees who independently determined their work tasks based on their unique experience and skills, the more highly specialized and less cross functional the team was as a result.

A number of works emphasize the need for management actions aimed at a significant transformation of the organizational structure and culture of companies as a basic condition for the transition to flexible management systems (Deloitte, 2016).

Transformation of the hr-function in agile-companies

Lack of literature makes it difficult to comprehend hr-function in the agile-companies. Based on the few data it is possible to deduce, that hr- functions "are blurred" and divided between the experts of hr- department, agile-coaches and scrum-masters.

As for "classical" hr-management, most often such specialist act as business partners whose duties are the following: to analyze current business processes of the company, identify training needs and implement training activities and organizational changes necessary for agile. Ragin-Skorecka (2014) notes that in general, the role of managers in agile organizations is to ensure the proper use of existing social capital and to develop entrepreneurial and innovative relationships between their subordinates. In 2012, Deloitte introduced the concept of "agile hr": the ability to create and respond to change in order to succeed in an uncertain and turbulent environment.

As we have already mentioned, there is controversial information about roles and functions of HR departments and HR-professionals. On the one hand, (Crowley, 2015) I the focus of functional and hr-managers, is less oriented on control, and more-on support of a team. On the other hand, there is evidence that the role of hr's in such companies is becoming less strategic (Chasserio, Legault, 2009). If the formal centralized hr-functions in bureaucratic companies allow hr-managers to focus on decision-making tools, in agile organizations their functions are focused on recruitment. The few remaining hr-functions are divided between team members, Scrum masters, and product owners.

In order to identify the key features of HRM in agile-companies, we conducted a quantitative study among Russian knowledge-intensive companies. The study aimed at

comparing two groups of companies: those who use agile-technologies and those who do not. The sample included both professional services companies (software development, web design, management consulting, legal services, and architectural services) and knowledge-intensive manufacturing companies (chemical industry, pharmacology, electronics, etc.).

5. Methodology

The data was collected both by self-administered online questionnaire and by structured telephone interviews conducted by a sociological company located in St. Petersburg (Russia). The questionnaire included a series of questions on various aspects of the implementation of agile and HRM technologies, including the role of HRM, the level of business strategy formalization, the use of ability-, motivation- and opportunity-enhancing HRM practices and the adoption of various agile frameworks and agile practices.

The survey involved 149 companies, 22 of which use agile technologies, including Scrum (8 companies), Kanban (6 companies) and other (8 companies). For the comparative analysis, we selected 20 companies that use agile technologies, and 20 companies that do not use agile technologies (further referred as traditional) that were identical to the first group in terms of firm size (number of employees) and industries. Each group included 14 companies from the IT services industry with 7-363 employees, 2 companies from the financial services industry with 10-200 employees, 2 companies from the architectural services industry with 10-230 employees, 1 company from each the field of advertising and PR-services with 50 and 70 employees and 1 company from the web-design industry with 10 and 17 employees.

6. Results

Table 1 presents the results of respondents' assessment of the effectiveness of agile-management practices in agile-organizations. The most positively rated practices are interaction with customers (4.5 out of 5), customer satisfaction assessment (4.4), stand-up meetings (4.3) and iterative development (4.3). As the least effective respondents considered the practice of retrospective sessions.

Table 1. The assessment of effectiveness of agile-practices

Agile-practices	Effectiveness (mean)
Interaction with customers	4,5
Customer satisfaction assessment	4,4
Stand-up meetings	4,3
Iterative development	4,3
Constant integration and testing	4,1
Iterative planning	4,1
Physical integration of a team	4
Retrospective sessions	3,6

The majority of sampled agile companies positively assessed the role of HR specialists in the application of agile technologies. 14 companies answered that the role of HR department is very or quite significant in company's agile processes, and only 4 companies rated its role as unimportant. However, the study showed a significant difference in the use of most HRM practices between agile and traditional companies (Table 2).

Table 2. HRM practices: the comparison of agile and traditional companies

HRM practices	Agile (20)	Trad. (20)	t-stat.
1. Applicants undergo structured interviews (job-related questions, same questions asked of all	4.5	3.65	-2.0785**

applicants, rating scales) before being hired.			
2. Applicants for this job take formal tests (paper and pencil or work sample) before being hired.	4.05	3.9	-0.3476
3. Employees systematically undergo formal training programs.	3.65	3.2	-1.0356
4. Employees use e-learning instruments for training	3.3	2.75	-1.0724
5. Employees have opportunities to participate in individual mentoring programs	3.75	3.25	-1.2854
6. The effectiveness of training and development is regularly assessed	3.25	3.15	-0.2203
7. The results of the performance evaluation process are used to determine the training needs for employees in this job.	3.35	2.9	-0.8587
8. Employees in this job have the opportunity to receive tuition reimbursement for completing college classes.	1.95	2.05	0.2181
9. Employees are involved in career development planning	2.35	1.5	-1.9589*
10. The rotations and career changes are systematic and carefully planned	2.15	1.65	-1.1899
ALL ABILITY-ENHANCING PRACTICES	3.23	2.8	-1.5592
11. Employees in this job regularly (at least once a year) receive a formal evaluation of their performance.	3.55	3.5	-0.1077
12. Pay raises for employees in this job are based on job performance	3.9	3.85	-0.1115
13. Employees in this job have the opportunity to earn individual bonuses (or commissions) for productivity, performance, or other individual-performance outcomes.	4.1	3.9	-0.6045
14. Employees in this job have the opportunity to earn group bonuses (or commissions) for productivity, performance, or other group-performance outcomes.	2.85	2.5	-0.6519
15. Employees in this job have the opportunity to earn company-wide bonuses (or commissions) for productivity, performance, or other operating company-performance outcomes.	3.05	2.85	-0.4168
16. Qualified employees have the opportunity to be promoted to positions of greater pay and/or responsibility within the company.	4.55	3.3	-2.8490***
17. Employees have opportunities to participate in ownership sharing and option plans	1.45	1.8	1.0509
18. Employees are proposed advanced social benefits package	2.55	2	-1.1916
ALL MOTIVATION-ENHANCING PRACTICES	3.25	2.9625	-1.1741
19. Employees in this job have a reasonable and fair complaint process.	4.7	4.25	-1.5055
20. Employees in this job are involved in formal	4.4	3.75	-2.0408**

participation processes such as quality-improvement groups, problem-solving groups, roundtable discussions, or suggestion systems.

21. Employees in this job communicate with people in other departments to solve problems and meet deadlines	4.7	4.25	-1.7220*
22. Employees in this job receive formal company communication regarding the goal setting and strategy processes.	4.45	3.9	-1.7223*
ALL OPPORTUNITY-ENHANCING PRACTICES	4.5625	4.0375	-2.0210*

* $p < 0,1$

** $p < 0,05$

*** $p < 0,01$

Table 2 shows that while there is overall little difference between two groups of companies, agile-companies more often use specific HRM practices. The key differences in ability-enhancing HRM are related to the use of structured interviews and formalized professional development plans. In terms of motivation-enhancing HRM practices, the data demonstrate that agile companies have more systematic opportunities for promotion. Opportunity-enhancing HRM practices involved the largest difference between two groups: agile companies more frequently involve employees into decision-making and strategizing process and promote knowledge sharing between employees.

The data also demonstrated substantial difference in how companies distribute responsibilities for the key HRM processes (Table 3). Importantly, HR department in agile-companies much less involved into hiring, selection, and training and development processes than traditional companies. At the same time, agile-companies provide greater responsibilities for line managers in hiring and selection and staff planning processes.

Table 3. The comparison of responsibilities for HRM processes

Actors	Salary and bonuses		Selection and hiring		Training and development		Staff planning	
	Trad.	Agile	Trad.	Agile	Trad.	Agile	Trad.	Agile
Line managers	10%	30%	55%	35%	60%	60%	85%	70%
HR department	0%	0%	25%	10%	15%	5%	0%	0%
Both	90%	70%	20%	55%	25%	35%	15%	30%

7. Conclusion

Analyzing the results of the study from the standpoint of MOA model, it can be noted that they are generally correspondent with the few data presented in the literature.

Practices related to recruitment and training are the most common in agile companies. The diversity and character of the methods employed can be explained by the increased requirements for the personal and professional qualities of employees who are members of the working teams. The HR department plays a crucial role in hiring and recruiting staff. The training programs are based on the results of the assessment.

As to motivation, companies use non-material methods of motivation. Career development is also based on the assessment of the achievements of specialists.

In general, these differences demonstrate the complexity and internal coherence of the HR system in agile companies, but at the same time, data on capacity-building practices suggest that there are insufficient HR activities in the area of organizational culture

involvement of personnel, interest in agile management technologies. Perhaps the shortcomings in this group of practices lead to the failure of many attempts to implement agile: it is impossible to create internally consistent system of HR, it is necessary to integrate it with basic strategies of the organization, with its organizational culture. This assumption is reinforced by the theoretical concept of the "double loop" of learning (Argyris & Schon, 1974) according to which the achievement of real development is possible not only at the expense of improving management practices, but rather due to their strategic integration with the key goals and values of the company.

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